Bernabei 8/17/69

Fragments in neck: I tend to think along lines of a small, light,
fast bullet nothing at all like 399-- one of the so-called "varmint
calibers"-- that burs on contact with the right front quadrant of the
trachea. That's a guess, but a good one, I think, for such a bullet
seems also to have struck JFK in the head. The Autopsy Report's refer-
ence to "no major part of a bullet" has no meaning. All those fragments
in the neck may total the weight of a small bullet and constitute several
xxxxxxxxxxx minor parts which, put together, make a whole bullet.
The varmint calibers range in xxxx weight from 50 to 100 grains. Not-
withstanding Wecht's statement, bullets of this type can and usually
do burst on contact merely with flesh-- they do not have to hit bones
to fragment. A bullet like 399 must strike bone to fragment (it was
designed to remain intact, in accordance with international agreements
dealing with warfare), but the soft nose or hollow point varmint calibers
do not have to strike bone to fragment (they xxxxxx are designed that
way, and such ammo is illegal for warfare). So understand: fragments
do not mean bones were hit (it could have that meaning only if it were
known that the fragments were made by a bullet like 399-- with hardened
lead and a full metal jacket). I'll dig up a photo to show you this:
In spite of my admiration for Wecht as a forensic pathologist, I think

he does not understand this case very well. I think he would be exceed-
ingly competent in listening to arguments and approving or disapproving
them, but I don't think he has considered all the aspects of the evidence
available.

Evidence from traces on the tie and short would be definitive only
if they showed traces of metal. The absence of metal tells absolutely
nothing and I think it unwise to base any conclusion whatever on it.
I would consider the absence of blood significant, however; if a project-
ile passed out of the neck and touched the shirt and tie, blood on
the projectile would be wiped onto the surfaces contacted. The presence
of blood would have no meaning, for it could have dripped from JFK's
wounds. So if spectro shows no blood, that means no exiting xxxxxxx
projectile. That's what spectro can show.

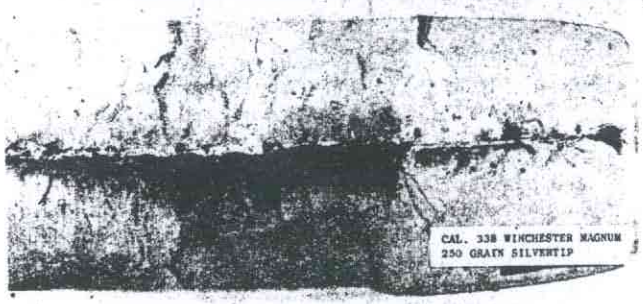
In a recent letter to Schoener I outlined what I regarded as the
two possibilities regarding the back wound; both involve a front-neck
entrance:

(a) JFK struck in the front*neck by a bullet that burst and sent
a large fragment out the back,

(b) JFK struck first in the front-neck by a small bullet that burst
and did not exit, leaving several "minor" fragments. Struck
second by a bullet in the back that did not penetrate deeply.

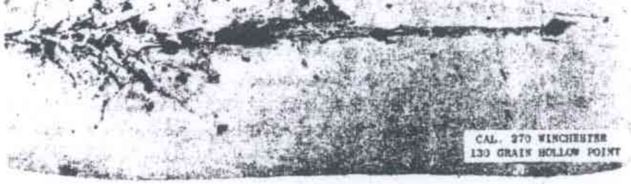
I favor (b) because of Frazier's testimony that hole in jacket showed
copper traces and because Glen Bennett said he saw JFK hit in the back
(Bennett was not looking at JFK when the first shot was fired.

THIS IS RATHER A HEAVIER AND SLOWER LOAD THAN I HAD IN MIND, BUT IT ILLUSTRATES THE EFFECT. NO BONE SIMULATOR IN THESE BLOCKS. BLACK DOTS IN BLOCK ARE FRAGMENTS.



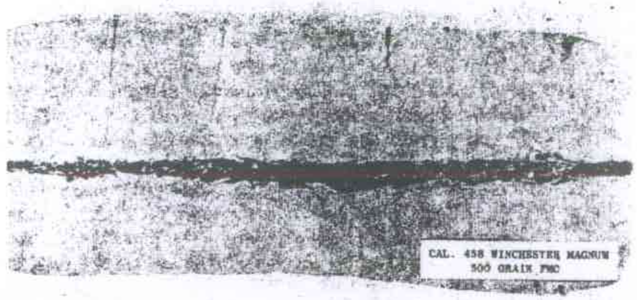
A CAL. 338 WINCHESTER MAGNUM 250-GRAIN SILVERTIP

THIS PROBABLY WOULD NOT OCCUR WITH LIGHTER, FASTER BULLET.



B CAL. 270 WINCHESTER 130-GRAIN HOLLOW POINT

C CAL. 458 WINCHESTER MAGNUM 500-GRAIN FMC



frequently recovered from the brains of bull elephants or from deep in the vitals of rhinos in virtually perfect shape. Save for the rifling marks, many are perfect enough to be fired again. Professional hunters presently recognize the 500-grain 458 solid as the surest and finest solid obtainable.

The opposite type of bullet, for varminting use, has its own problems. The jacket of the varminter's bullet should be just strong enough to provide top accuracy consistent with holding the bullet together during its first burst of high-speed flight. Too thin or too weak a jacket will permit the projectile to burst from its own velocity and rotation and puff into smoke a few yards from the rifle muzzle. A marginally weak jacket may permit bullet distortion that is ruinous to the tight accuracy demanded by the varmint hunter.

The varminter's bullet must be made so that it will not expand in the ordinary sense but will smash up and fragment immediately after impact. It must create maximum tissue destruction for instant execution of such vermin as woodchucks, rockchucks, prairie dogs, crows, jack rabbits, and foxes. The breakup must be so sudden as to explode a crow and completely eliminate ricochet in partly settled areas. These are specialized bullets. The 110-grain pointed soft points loaded for the 30-06, to make that caliber an off-season varminter, for example, could hardly be expected to penetrate properly on a bull elk hit at an angle. This same bullet, meant for nothing larger than coyotes, might do very well indeed on an antelope hit squarely in the rib cage.

The bullet designer's real problem becomes complex in the wide middle range of game calibers, types, and bullet weights.

How bullets perform in tissue is dramatically illustrated by these three pictures. In photograph A, a bullet has penetrated a block of gelatin that approximates game tissue. Of medium-large caliber, the bullet has created a wide and long area of destruction. In photograph B, a bullet of smaller caliber and higher velocity has entered an identical gelatin block. After short penetration, it expanded rapidly and violently, as it would inside a small game animal. In photograph C, a heavy, slow bullet of the 458 Magnum, bluff-nosed and steel-jacketed, has bored far and deep enough to penetrate, for example, the bone-protected brain area of an elephant.